

DEPARTMENT OF ENVIRONMENTAL PROTECTION
205a Lowell Street
Wilmington, MA 01887



SEMS DocID

594328

F A X C O V E R S H E E T

DATE: March 19, 1999 **TIME:** 3:22 PM

TO: Gilberto Irizarry **PHONE:** (978) 777-0851
USEPA. **FAX:** (978) 777-0975

FROM: Stephen J. Roberson **PHONE:** (978) 661-7732
DEP/NERO **FAX:** (978) 661-7615

RE: File documents re. subsurface conduits

Number of pages including cover sheet: 27

Message

Tito --

This is about all we have in our files that might shed any light on the in-plant piping and drainage systems at the American Glue site. I don't think you'll find much in here that's helpful, but I thought I should send it along anyway. Attached are the following documents:

1. a plant layout diagram from a 1995 RFI response from Glennon-American (a former operator);
2. thirteen pages from a 10/87 assessment report, including a diagram of drainage conduits and catchbasins on the site (showing, among other things, the three four-inch pipes that led to the sand filter out back);
3. a three-page letter from 5/87 describing subsurface disposal systems at the site;
4. ten pages of excerpts from a 2/87 assessment report (the last page is a handwritten memo from town Board of Health files, which you might find interesting).

I'll give you a call next week about the rolloff and other issues. Thanks for continuing to keep me posted, and for all the good work you've been doing out there. Have a good weekend.

Steve

APPENDIX D
MIDDLETON BOARD OF HEALTH MEMO

5.00 CONCLUSION

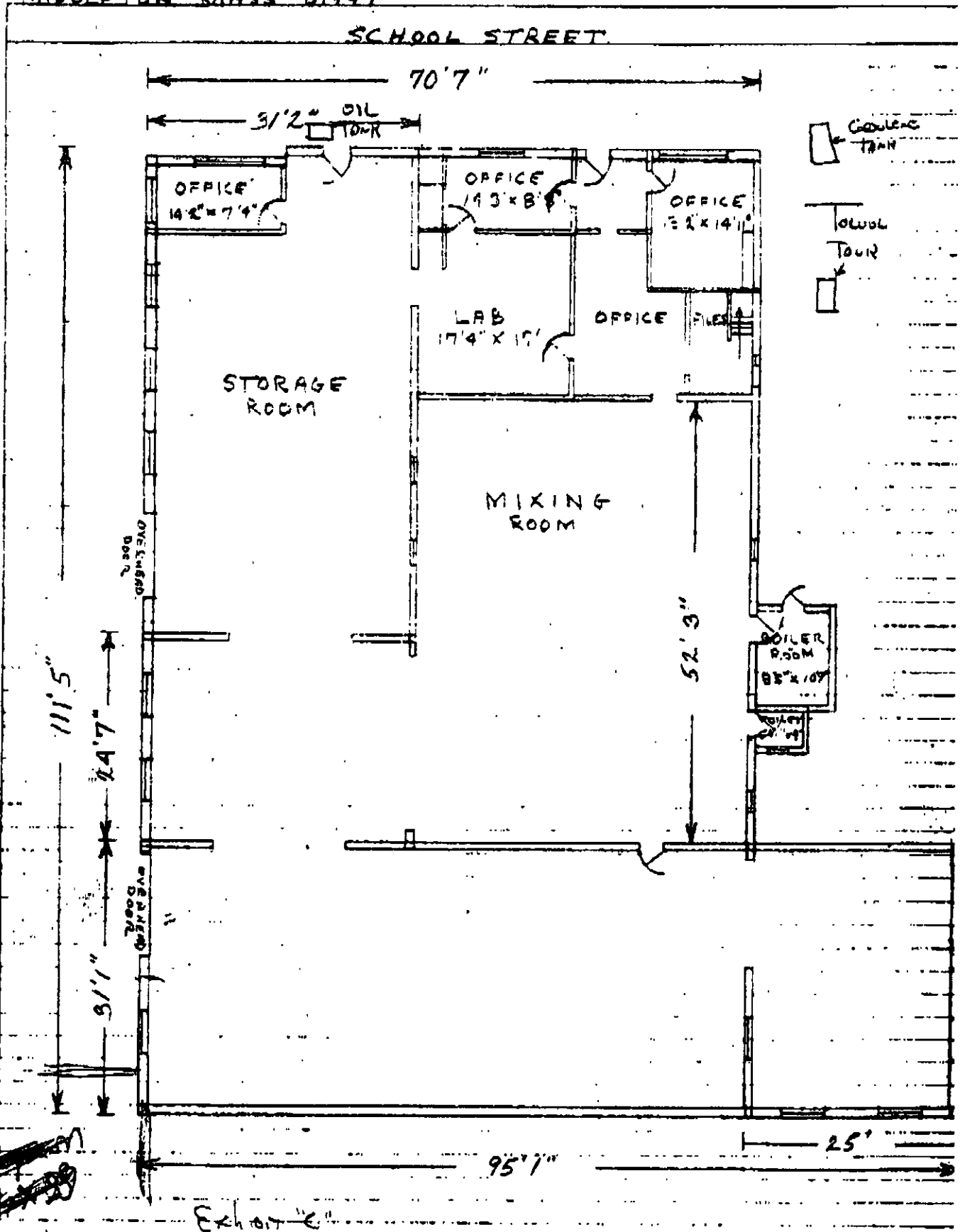
Based on these past and present activities occurring at American Glue and Resin Co., as outlined in this report, it is Environmental Compliance Services, Inc. (ECS) opinion that hazardous wastes and/or constituents of hazardous wastes may have been released to the environment in and around American Glue and Resin Co. not necessarily directly attributed to American Glue and Resin Co. Investigations into compiling further historical data to further substantiate these possibilities are continuing.

As a result of these findings it is ECS's recommendations that a Phase 2 investigation be implemented as outlined in Appendix E.

Implementation of Phase 2 will include the development of a health and safety plan as outlined in Appendix F.

GLENNON-AMERICAN COMPANY
40 SCHOOL STREET
MIDDLETON MASS 01949

FIRST FLOOR
SCALE: 1" = 15'



II. SITE DESCRIPTION AND RECONNAISSANCE

IIA. Site Description

The American Glue and Resin Co. is located in the northwestern portion of the Town of Middleton, Massachusetts at 40 School Street (see Figure 1). The site is bounded by Boston Brook to the northwest; School Street to the southeast; a residential building and barn (34 School Street) to the southwest; and Tom Sawyer Beverage (42 School Street) a beverage bottling plant to the northeast. Across School Street to the southeast is a wetland (see Figure 2).

~~The site consists of approximately 3.2 acres of land.~~
The southeastern half of the site is dominated by on site buildings and associated paved/graveled areas (see Figure 3).

One main building exists on site, constructed from cement block. The building foundation consists of a poured slab which also acts as the floor. Contained within this flooring are numerous drains which were sealed by American Glue in November of 1986. Attached to the building on the eastern side is a prefabricated office building. This building is supported by concrete filled sona tubes. Also on site is a storage building and a number of storage trailers (see Figure 3).

The northwestern third of the site is wetlands associated with Boston Brook which flows to the north. The area between the wetlands and the active portion of the site

is covered with upland vegetation. None of the wetland or upland vegetation showed any signs of stress.

The site is relatively flat sloping gently toward Boston Brook with the exception of a ^{small rounded hill} knoll directly behind the main building. This knoll rises approximately 20-feet above the surrounding grade (available site topography is shown on Figure 3). This topography in conjunction with the location of the catch basins cause the majority of surface waters, which do not infiltrate into the ground, to discharge into the wetlands associated with Boston Brook at the rear of the property.

IIB. Potential Contaminant Source Location

~~Environmental Compliance Services, Inc. Inspection of the American Glue and Resin Co. properties revealed the~~ existence of six discrete areas which potentially could have ~~been~~ sources of contaminant release to the environment. These include the following:

1. Underground Storage Tanks

Three underground storage tanks were located in the southwestern portion of the property. These tanks include a 3,000-gallon toluene tank, a 1,000-gallon gasoline tank, and a heating oil tank. The gasoline and toluene tank were removed during this study (see Section IIIB). The third tank, containing heating oil is expected to be removed in the near future.

2. Cesspool

During the Phase II investigation a cesspool was discovered along the western side of the building. The cesspool is a 6 to 8-foot diameter pit lined with stone which is approximately 4 to 6-feet in depth (see Figure 3 and Figure 5 for the location of the cesspool). The bathrooms in the main portion of the building emptied into this cesspool. It is not known if any of the abandoned floor drains were ever discharging to this area. Once discovered, use of the bathrooms was stopped and a sample was obtained from the cesspool on June 8, 1987. An inspection on July 22, 1987 found the cesspool to be dry.

3. ~~Abandoned Production Well~~

A third potential source of contamination an abandoned production well was also discovered during the Phase II investigation. The abandoned production well was found located within the main building. The well, associated pumps and equipment were discovered beneath the floor in a concrete lined pit (see Figure 3 for location). This pit is covered by a steel plate with grates which lead into the pit.

At the time of the first inspection, the pit contained 2 to 3-feet of water. This water was above the top of the well casing which was sealed. The integrity of this casing could not be determined. Since there is a direct access from the floor into the

pit it is presumed that any constituents historically used on site had the potential to enter this pit. This is particularly important when considering the potential for direct bedrock contamination.

4. Loading Area

As previously outlined in the Phase I report, there is a possibility that past operating practices may have resulted in the discharge of materials to the surface. These activities most probably would have occurred in the loading area and yard on the northeastern side of the building. Additionally, the presence of the septic tank and catch basins in this area further enhance the potential for the release to the environment.

5. Sand Filtration System

Review of records from the Town of Middleton Health Department indicated that a sand filtration system was previously used at the site. Exact use of the system was not stated. The location of the sand filtration system and exact use were not stated. A manhole was found to the rear of the property, which was found to cover a cement block lined pit. It is assumed that this cement pit may leach into the filtration system ^{located} alluded to in health department records.

~~A sludge resembling glue was found in the bottom~~

~~of this pit.~~ No evidence of piping leading in or out of this pit was discovered. However, during test pit excavations for a new septic system, a 4-inch pipe running in the general direction of the manhole was discovered. This pipe was found to contain a glue like residue, assumed to be related to the system.

6. Septic Outbreak ?

A septic outbreak as observed by ECS personnel is located on the border of the wetlands associated with Boston Brook (see Figure 3). This outbreak is assumed to be related to the septic system as it exhibited the odor and appearance associated with a failed septic system.

IIC. Identification of Sensitive Receptors

A general field inspection of the site, specifically around the contaminated areas, showed no evidence of impact to flora and fauna. However there are three potential areas where groundwater contamination could potentially effect human health and/or the area ecosystem. These areas are the wetlands associated with Boston Brook, Boston Brook itself, and the local bedrock water supply.

1. Wetlands

The northwest one-third of the property contains a wetlands associated with Boston Brook. This wetlands could potentially be a receptor of contamination from the sand filtration system and the septic outbreak as

well as eventually receiving groundwaters impacted by other sections of the site.

The direct impacts to this area would be to the biota present.

2. Boston Brook

Boston Brook forms the northwestern boundary of the site. It is an important surface water body as it eventually discharges to waters which are used as a public water supply.

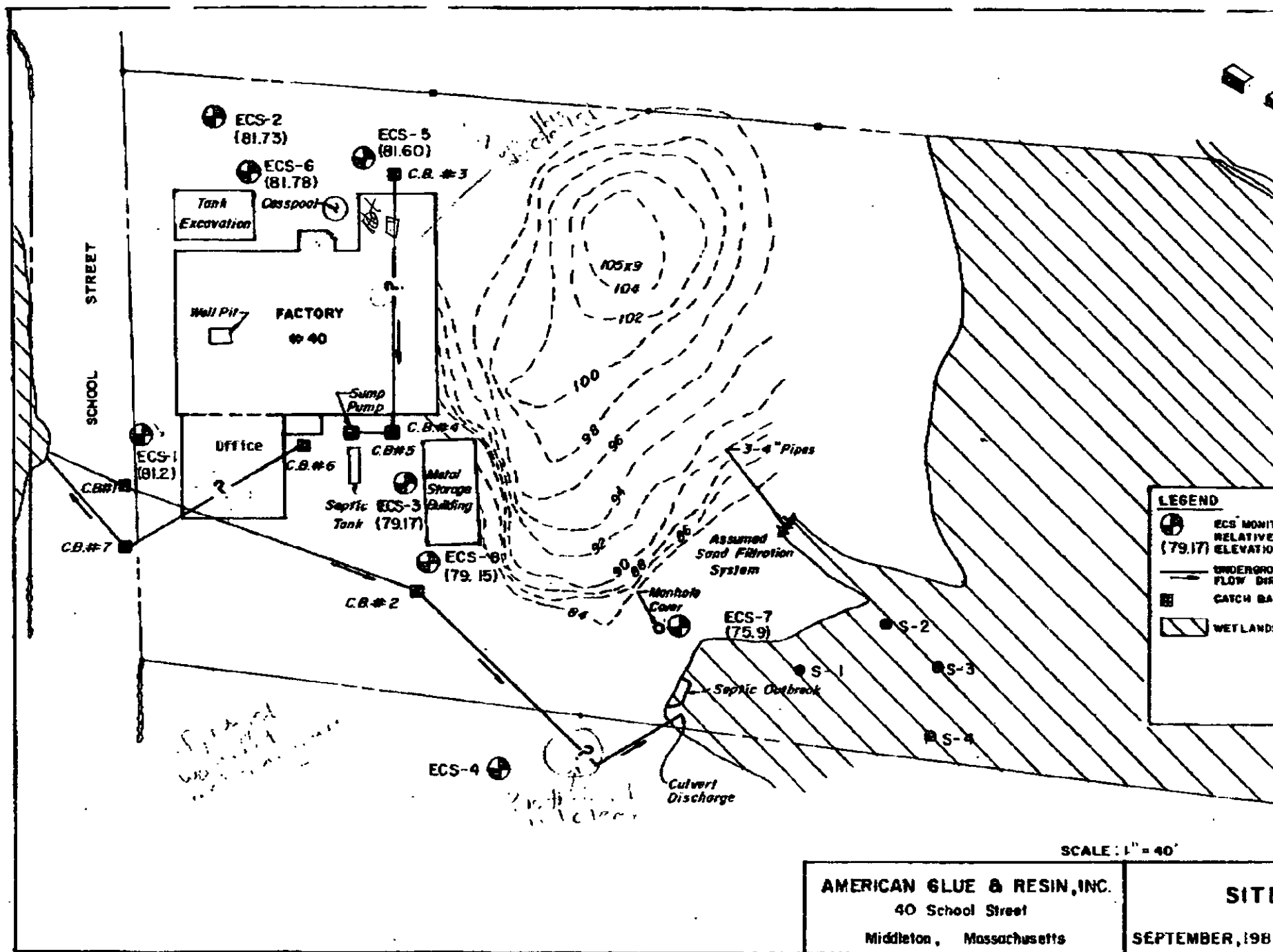
The brook is also used for recreational activities (i.e. fishing) within the community.

3. Bedrock Drinking Well

The site and adjacent residences have private drinking water wells. Therefore groundwater designation for this study area is Class 1. According to 314 CMR 6.00: "groundwaters assigned to this class are fresh groundwaters found in the saturated zone of unconsolidated rock and bedrock and are designated as a source of potable water supply".

Therefore any contaminant levels encountered within these wells could impose potential health impacts.

4. Shallow aquifer, the home across the road since pumping in that dir. only. (41 School St.)



AMERICAN GLUE & RESIN, INC. 40 School Street Middleton, Massachusetts	SITE SEPTEMBER, 1987
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III. FIELD INVESTIGATIONS

ECS's field investigations included test borings, installation of monitoring stations in selected borings, inspection of tank removal, measurement of groundwater levels, collection of groundwater samples and surface water samples for chemical analysis, and dye tracing of the on site subsurface drainage system.

IIIA. Investigation of Subsurface Piping and Disposal

A number of site visits were made to delineate the subsurface piping network and to identify the construction materials of the on site septic system. Dye tests were performed, where appropriate, to attempt to delineate various interconnections and discharge locations.

1. Pond Drainage

A 12-inch corrugated metal pipe carries water above elevation 81.7 feet, USGS Datum, from the off site pond, on the south side of School Street to the wetlands associated with Boston Brook on the northwestern section of the property. It is assumed that this pipe was installed by the town to alleviate flooding problems on School Street. Associated with this pipe are a catch basin located in School Street, and a catch basin to the east of the on site metal storage shed. These catch basins are designated as no. 1 and no. 2 on the basic layout of this system as shown

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on Figure 2. During all inspections water within this system was flowing continuously at a high velocity. The interconnections of this system were confirmed by dye tracing.

2. On Site Storm Water Drainage

Currently an on site storm water drainage system exists. However, based on observations made the system appears inefficient due to improper invert elevations. The catch basins contained water but a minimum amount of flow was observed. The piping diagram shown on Figure 2³ was drawn from information obtained from conversation with employees and observation of the physical layout of the system. Based on this available information the system seems to begin at catch basin no. 3 located near the western corner of the building. The drainage pipe supposedly continues through the building where the line then enters catch basin no. 4 on the east side of the building. This catch basin no. 4 was sealed in November, 1986 at the request of the DEQE. A pipe leading from this sealed catch basin enters another catch basin no. 5 which contained a sump pump which would periodically discharge to the ground surface. It is not known what if any interior drains, which were sealed in November of 1986, were connected to this drainage system.

The second section of the system begins at catch basin no. 6 in the loading dock area. It is assumed

that basin no. 6 is connected to a catch basin no. 7 within School Street, which discharges to the pond across School Street. No dye testing to confirm the flow or drainage of this system could be performed as catch basin no. 6 was plugged and filled with sand.

3. On Site Septic Disposal System

No specifications or details for the septic disposal system were available, however the septic tank is located in the loading area as shown on Figure 7. The construction and layout of the piping system, presumed to be discharging from the tank, is unknown. ?? There is evidence, however of a septic outbreak/failure near the wetlands as shown on Figure 7.

A potential cause of this outbreak may be overloading caused by the septic tank cover construction. It was observed that the septic tank had an open grate for a cover which was at a low point for the surrounding grade. Additionally this grate is directly down gradient from the previously described sump discharge for the on site storm water discharge. The construction of this cover is of concern in that it would have allowed a significant amount of inflow of possible contaminated surface waters or spills within the yard area into the tank which would eventually discharge to the subsurface wetlands. As of this writing the grate has been removed and the top of the tank temporarily sealed.

An additional cause for this outbreak may be from a break or failure in the leach field, or the possibility of a discharge pipe in the absence of a leach field.

IIIB. Inspection of Tank Removal

On March 16, 1987, Mr. Chris Denfeld representing ECS, observed the removal of one 1,000-gallon tank and one 3,000-gallon toluene tank from an area located at the south corner of the building which is shown on Figure Z.

An account of activities occurring during the removal process is contained in Appendix D.

IIIC. Soil Borings and Groundwater Monitoring Well Installation

Based upon the presence of individual contaminant sources and potential migratory pathways a total of eight shallow groundwater monitoring wells were installed.

These monitoring wells were installed to delineate the sites shallow groundwater flow system and quality as well as addressing impacts of individual potential sources. The following is a summary of each well placement:

ECS-1 - Up gradient well for entire site as well
as up gradient of tank area. *1. not necessary*

ECS-2 - Up gradient well for entire site.

ECS-3 - Establishes limits of contamination to the east.

ENVIRONMENTAL COMPLIANCE SERVICES INC.

Consulting Specialists in
Hazardous Waste
Industrial Waste Water Treatment
NPDES Compliance

P.O. Box 58
122 Main St.
W. Springfield, Ma. 01090
(413) 732-6243

May 4, 1987
File No. 10149

Mr. Thomas Mahin
Massachusetts DEQE
Northeast Region
5 Commonwealth Avenue
Woburn, MA 01801

RE: American Glue & Resin Co.
Middleton, Massachusetts

Dear Mr. Mahin:

Environmental Compliance Services, Inc. (ECS) has conducted a preliminary investigation attempting to trace, locate and reference existing and historical on site subsurface disposal systems in place at American Glue & Resin Company located in Middleton, Massachusetts.

Presented within please find a schematic depicting existing drain lines and associated piping currently in place at American Glue. Please note that no data and records were uncovered during ECS's investigation revealing in house piping and existing septic system design.

An initial investigation has revealed that current site drainage partially flows to the on site septic system, via a grated manhole, thus potentially overloading and taxing the in place system.

Additionally a historical subsurface disposal system has been unveiled (reference Attachment I). Preliminary findings indicate that spent wash waters resulting from the glue manufacturing process were discharged to a sand filtration system which eventually drains to the abutting wetlands. Specific engineering design plan for this system could not be found.

ECS emphasizes this system has not been used for sometime, this is evidenced as inflow and outflow sources associated with this system have been completely overgrown with primary vegetation.

Mr. Thomas Mahin
Massachusetts DEQE
May 4, 1987

Page 2

Based upon the information obtained and data gathered during ECS's initial investigation, ECS proposes the following:

1. To excavate in and around the vicinity of American Glue's existing septic system and historic sand filtration system (reference Attachment I). The purpose of the intended excavation is to evaluate the integrity of the existing septic system as well as confirm existing and historical discharge sources to both sand filtration and septic systems.
2. Revise existing on site storms water drainage system to eliminate flooding conditions and surface drainage impacts to the current septic system.
3. Replace existing grated manhole (current inlet to septic tank) with a sealed manhole cover, to eliminate additional flow.
4. Conduct a thorough Phase I investigation in the vicinity of the sand filtration system to define MGL c. 21-E applicability.

Please note that due to the proximity of abutting wetlands follow up investigations will be conducted in accordance with chapter 131 section 40 of Massachusetts Wetlands Protection Act.

If there are any questions please do not hesitate to contact our office.

Respectfully,

By 
Mark C. Hellstein - Principal

MCH/smm

AMERICAN GLUE & RESIN CO.

PHASE I

RECEIVED

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D.E.Q.E-Northeast Region

environmental compliance services inc.

hazardous wastes & waste water specialist

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1.00 INTRODUCTION

This Phase I report presents the findings of the multi-phase site investigation undertaken by Environmental Compliance Services, Inc. (ECS) for American Glue and Resin Co. on properties located at 40 School Street in Middleton, Massachusetts.

This report is submitted to fulfill the requirements of the Department of Environmental Quality Engineering (DEQE) Case No. 3-168 Requisite Site Action Item (1) outlined in a Massachusetts DEQE Northeast Region letter dated December 29, 1986.

Note that this report is subject to the limitations presented in Appendix A.

1.10 SITE DESCRIPTION

The American Glue and Resin Co. is located in the northwestern portion of the Town of Middleton, Massachusetts at 40 School Street (see Figure 1). The site is bounded by Boston Brook on the northwestern boundary; School Street to the southeast; to the southwest is 34 School Street a residential house; and to the northeast is 42 School Street occupied by Tom Sawyer Beverage. Across School Street to the southeast is a swamp.

The site consists of approximately 3 acres of land with one main building on site comprised of a number of additions. Also on site is a storage building and a number of storage trailers.

The site is ~~currently~~ and has been since 1978, ~~utilized by American Glue and Resin Co. a glue manufacturing facility.~~ From 1970 to 1978 Glennon American operated a glue manufacturing facility on the premises engaging in similar manufacturing operations as the current owner. Prior to 1970 the current owners of 42 School Street (Tom Sawyer Beverage) operated a bottling company at the site.

2.00 MANUFACTURING PROCESS

American Glue and Resin Co. is a 100 percent job shop, engaged in the manufacture of Dextrin and Acetate based glues. Total annual production is between 120,000 and 140,000 gallons of glue. These glues may be one of over 100 proprietary formulas reflecting individual customers needs. These numerous formulas require raw material mix and process sequence fluctuate to meet performance specifications. A list of all raw materials along with approximate percentage of use is presented in Table 1.

2.10 DEXTRIN PROCESS

Dextrin based glues comprise 35 to 40 percent of the total annual glue production. Production volume per batch ranges from 220 to 550 gallons. A typical formula incorporates the mixing of 45 percent water and 50 percent Dextrin in a large kettle. Dextrin is a natural starch derived from either potatoes or corn. Depending upon specific formulations the remaining percentage of the raw material mix could include any of the raw materials indicated as such on Table 1. This entire mixture is then heated to a temperature of approximately 140°F for about two hours. After heating it is allowed to cool. Once cooled preservatives including Formaldehyde or Dowacide A are added and the batch is remixed. The mixture is then poured into the appropriate shipping container (tote or drum). The kettle is then cleaned with a high pressure wash before the next batch is begun. A schematic of the entire process is shown in Figure 3. It should be noted that no volatile organic constituents are utilized in this process.

2.20 ACETATE PROCESS

Acetate based glues comprise 60 to 65 percent of the total produce mix. Typical batch sizes range from 220 to 1,100 gallons which are mixed in large mixers. Small batches however are occasionally mixed directly in 55 gallon drums. The formula consists of anywhere from 70 to 90 percent Acetate which is essentially Elmers Glue. Like Dextrin based glues, production of Acetate based glues is contingent upon the variability of the individual job orders. Consequently, the remaining percentage of the raw material mix for Acetate glues will contain water and one of the materials listed as such on Table 1. This entire blend is then mixed and subsequently placed into the appropriate transportation container (tote or drum). A schematic of the process is contained in Figure 4. The mixing vessel is then cleaned with a high pressure cleaner.

~~Production data reveals that approximately 50 percent of Acetate glue production incorporates volatile organic constituents usage ranging from 2 to 7 percent. These are principally 1,1,1-Trichloroethane and Toluene (Toluol).~~

2.30 PRODUCTION WATER MASS BALANCE

Besides Dextrin, water is the principal constituent of Dextrin glue and is also a major constituent of Acetate glue. ~~Waters used in the manufacture may come from three~~ sources: virgin waters (from on site well); waters collected from kettle wash down after production; and water from ~~totes~~ returned by customers.

The customers return totes after using the glue for refilling. Before shipping the tote back to American Glue the glue user is instructed to add a small amount of water to prevent remaining glue residue from hardening. This water is then returned into the process with remaining residue.

Additionally waters from washing down the mixing kettles are placed into totes still containing transport waters. ~~Average volume~~ produced per kettle wash down is between ~~4~~ to 8 gallons. These waters are then bled back into the product as needed.

Tap waters are used to supplement tote and wash waters if needed. A schematic of water usage is contained on both Figures 3 and 4.

3.00 PRESENT ON SITE HAZARDOUS WASTE

American Glue and Resin Co.'s current manufacturing processes and management practices insure that there is no intentional generation of hazardous waste as defined by 310 CMR 30.1. There are however, a number of potential sources of hazardous waste on site.

Presented below are potential hazardous waste generation sources and in house procedures to control them:

1. Raw Material Spillage - Spillage of a number of raw materials used on site could result in the production of a hazardous waste. Table 2 contains a list of raw materials which, if released, could be considered hazardous. Corresponding MSDS Sheets are contained in Appendix B. Proper handling of these raw materials should eliminate the potential for spillage. Any spillage which might however, occur due to human error, would be contained, collected and disposed of in a proper manner.
2. Incidental Spillage of Product During Production - During production incidental spillage of product sometimes occurs. Current practice is to allow spillage to dry and/or pick-up with speedi-dry then handle it as a solid waste.
3. Production of Off-Spec Product - Occasionally a product may be produced which is not of performance specifications. These products are stored and then reintroduced into glue production which is compatible with their make up.
4. Wash Down Waters and Customer Tote Waters - From an economic/operational end these waters are directly recycled and fed back into the manufacturing process. Occasionally, if customers overfill the returned totes the volume of accumulated wash and tote waters will exceed production needs. In these instances the excess materials are contract hauled to Lawrence Sewer District.
5. Underground Storage Tanks - Currently there are two underground storage tanks located on site. Any leakage or spillage of product during filling would be considered a hazardous waste. One tank is a 3,000 gallon toluene (toluol) tank approximately 10 years in age. Appendix C contains the appropriate Form 290 for this tank. The second is a gasoline storage tank of unknown size and age. This tank has not been used during American Glue and Resin Co. operation at the site. Approximate locations of the tanks are shown in Figure 2.

What about
the
oil?

Inventory records of the toluene tank were reviewed regularly by American Glue and Resin Co. to detect any measurable loss of product, none was noted. Subsequent to this investigation the tank was emptied to eliminate any possible release.

No information on the underground gasoline storage tank is available. Both tanks, however, will be excavated within the next 2 months to both eliminate the potential source and aid in determining if a release has occurred.

Table 3 is included summarizing the potential on site hazardous waste sources. Also included on this Table are specific waste constituents associated with each source. It should be noted that in the past trichloroethylene may have been used in place of 1,1,1-Trichloroethane.

An important aspect of any investigation of potential hazardous waste releases to the environment is the identification of pathways of release. Table 3 also contains these pathways for each constituent. The first and most likely pathway, was a system of floor drains contained throughout the building. These drains were sealed in October of 1986. Their destination is not known, they may lead directly to the ground, to an on-site septic system or to on/off site storm drainage.

There are no records of the construction details of the septic systems. Based on a limited site inspection and conversation with the owner it is assumed to consist of a tank exiting to a leech field near the brook/wetlands in the rear of the building.

A number of catch basins are contained on the site. Based solely on visual observation the culverts appear to be connected to the road storm sewers extending across the site, and discharge to the brook/wetlands in the rear of the building. It is currently not known if there is any direct interconnection of the storm sewer and the septic system. Figure 2 shows approximate location of catch basins, and outfalls, and assumed locations of the septic system.

Another potential contamination path would be wastes discharged directly to the ground. These wastes would either enter the ground directly through infiltration or would flow into on site catchments and/or surface water bodies.

The last potential contamination pathway would be leakage from either of the two underground storage tanks or associated piping directly into the ground.

4.00 HISTORIC RELEASE POTENTIAL

Historically it is difficult to determine the extent of recycling management and good housekeeping practice, with the knowledge that numerous floor drains were in existence at this facility. Reasonable assumption can be made that unintentional or intentional releases of materials to the subsurface through these drains may have historically occurred. The frequency and volume of such release(s) is unknown.

Our recent review of the Middleton Board of Health records revealed that on one occasion dumping occurred directly into the swamp across the road (see Appendix D). However, this incident occurred in 1973 when Glennon American, not American Glue, owned and operated a glue manufacturing facility on the property.

Glenon American.

~~to 2-1-74~~

Investigated a complaint by
Mrs Donald Hall 171 Liberty St
That a tank truck was dumping
waste product into a swamp next to
a glue factory.

Went with her to site. Found washing
material off road into swamp.

Material found to be white sh. sticky,
very mild odor, water soluble. mild ^{acid} ~~acid~~
Told substance is a latex product,
Biodegradable, not harmful.

Talked with Mr Richard Bray
~~Plant Manager (owner)~~

He said that the trucks would
draw out in the future in the plant yard
where any stuff that falls to the ground
would be on his property - Apologized for ^{mate}

Returned to office. Told Mrs Hall
to contact me if she encountered further violation.

AMERICAN GLUE AND RESIN COMPANY

PHASE II

DATA SUMMARY

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ENVIRONMENTAL COMPLIANCE SERVICES, INC.

Job No. 10149

October 1987